ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Electronic equipment for nuclear applications showed greatest percentage of increase in actual sales during 1958 among the main types of electronic equipment sold by U. S. factories to the U. S. and foreign industrial market. Sales of $35 million in nuclear electronic apparatus for 1958 compared with $27 million in 1957 and $22 million in 1956, according to latest Electronic Industries Association Fact-book. While showing good percentage gains, the dollar volume of this equipment was still far short of 1958 sales of such other electronic equipment as computers and processing devices ($290 million sales); testing and measuring instruments ($220 million sales); navigational aids ($100 million sales); industrial controls ($160 million sales); and medical and therapeutic apparatus ($145 million sales). (Other PRODUCT, PROCESS, INSTRUMENT NEWS, p. 5 this LETTER.)

High-level radiation laboratory for U. S. Naval Research Laboratory, Washington, D. C., will be designed and engineered by Vitro Engineering Co. under contract the company has received. Estimated to cost $1.7 million, the laboratory's facilities are to support the Navy's increasing nuclear development programs including power plants for submarines, surface vessels, and aircraft. As planned, a one story reinforced concrete building will contain five hot cells for remote-controlled operations at working radiation levels ranging from 1,000 to 10,000 curies. The firm is division of Vitro Corp. of America, New York. (Other CONTRACT NEWS, p. 2 this LETTER.)

India's 14-tons per year heavy water plant at Nangal will be built for Government of India by German Linde under recent contract handed the company. The plant will recover deuterium by distilling the hydrogen being fed to an adjoining ammonia works. Completion date is scheduled for 1960. (Fifteen tons of heavy water are now being leased by India from the U. S. for initial inventory in the new research reactor at Trombay.) (Other NEWS OUTSIDE THE U. S., p. 3 this LETTER).

Five year extension of its USAEC uranium concentrate purchase agreement has been given Uranium Reduction Co., operators of a 1,500 tons per day uranium processing mill at Moab, Utah. The amended agreement extends the company's contract to Dec. 31, 1966 (it had been due to expire Mar. 31, 1960) and requires conversion of one of the mill's acid circuits to a carbonate circuit that can handle the high-lime ores of the district. Also set out in the agreement are firm allocations to local independent ore producers whose properties become "dedicated" to this particular mill.

New atomic power group for procuring nuclear propulsion plant for Great Britain's first atomic powered submarine, the Dreadnought, has been set up by Westinghouse Electric Corp., Pittsburgh, Pa. To be known as the special atomic project department, it will be made up of engineering, purchasing, manufacturing control, and administrative people. In addition to procuring the atomic power plant equipment for this British submarine, Rolls-Royce and British Admiralty people will be trained in design and construction. (Other BUSINESS NEWS, p. 3 this LETTER.)

ATOMIC ENERGY CONTRACT NEWS...

PROPOSALS INVITED: Proposals for participating in construction of a small size pressurized water nuclear reactor power plant have been invited by the USAEC's Oak Ridge operations office. Eligible to bid are cooperatives and public power organizations. Recent Commission survey showed widespread interest of these groups in building such plants; accordingly, the USAEC is designing and plans to construct one of this type. Participation in the project would involve providing (as a minimum) the site; conventional turbogenerating facilities; and certain other services. After a period of not more than ten years, plant operator would have the opportunity of buying the reactor. As designed, the plant would have electrical capacity of 16,500 kw, or a conventionally-fired superheater could be added at the proposer's option to increase its capacity to 22,000 kw. (Under consideration by the USAEC is issuance of second invitation to same organizations for another small size plant using a boiling water reactor.) Further information on the project may be obtained from USAEC, P.O. Box E, Oak Ridge, Tenn.

CONTRACTS AWARDED: The U. S. - EURATOM research and development contracts previously announced as made to three firms have now been revealed as being issued to American Standard Corp., Battelle Memorial Institute, and Compagnie Industrielle des Ceramiques Electroniques. American Standard will make a study of clad ceramic plate fuel elements by spray coating techniques; Battelle will investigate boiling heat-transfer and void distribution in studies with water coolants; and Compagnie Industrielle will study the extrustion of uranium oxide. Total value of the contracts was approximately $315,000. (The U. S. - EURATOM Joint Research Board, which made the awards, is continuing its review of the more than 200 industry research and development proposals it received in response to its invitation of last December to participate in the joint program.) (American Standard, which handles its nuclear research and development through Advanced Technology Laboratories, its division, recently received two other USAEC contracts. One program provides for evaluation and testing of the variable moderator reactor concept. This type of reactor is controlled by adjustment of the level of ordinary water used as a neutron moderator rather than by mechanical manipulation of neutron-absorbing control rods. A second program is for improvement of irradiation stability of natural uranium metal, developing techniques for treating uranium to materially increase the life of reactor fuel elements.)

Union Carbide Corp.'s cost-plus-fixed-fee contract with the USAEC for operation of four major Commission facilities has been extended until June 30, 1964. The contracts, due to expire June 30, 1960, are for operation of the two large gaseous diffusion production plants at Oak Ridge; Oak Ridge National Laboratory; and the gaseous diffusion plant at Paducah, Ky. Union Carbide Nuclear Co. is the division of Union Carbide Corp. which handles these projects.

Construction of fuel cladding facility at the General Electric-operated Hanford Works will be handled by Gates City Steel, Inc., Boise, Idaho, under recent contract award of USAEC's Richland, Wash. operations office. Company's low bid was $229,579.

Contract for final design and fabrication of a sodium-to-sodium heat exchanger and a sodium-to-water steam generator has been awarded Alco Products, Inc., Schenectady, N.Y., by the USAEC's Chicago operations office. This new contract, valued at $1,565,000, follows an initial contract awarded in 1958 to Alco for the preliminary design of heat exchanger components for sodium-cooled nuclear power plants. Alco will now follow up on its preliminary work with research and development, and final design and manufacture of the prototype units.

Award of $135,000 contract to Tracerlab, Inc., on a competitive bid basis, by Navy Department Bureau of Ships, covers development, design and manufacture of a continuous air particulate monitoring system. A prototype model and several production models will be made up for BuShips.

Some 22 new contracts have been awarded by the USAEC to 19 recipients under the Commission's program to accelerate development of commercial uses of radiation and radioisotopes in the U. S., and to encourage production of radioisotopes by industrial firms. Contracts totaled $800,000 and are with 20 educational institutions, industrial firms, and private laboratories.

ATOMIC ENERGY BUSINESS NEWS...

BUDGET OF USAEC GETS CONGRESSIONAL APPROVAL: Some $2,683,029,000 has been made available for USAEC spending for fiscal year 1960, with recent Congressional approval of the USAEC Appropriations Act. While this is an increase of $6,974,000 over fiscal year 1959's appropriation, it is $35,686,000 below the Commission's budget request. (The House suggested the USAEC obtain from GSA stockpiles the 16,303,000-lbs. of aluminum it will need in fiscal 1960. It was pointed out that the U. S. government's aluminum stockpile is now six times the maximum defense objective, with the total of strategic materials inventories some $4 billion in excess of defence requirements.)

COMMENT INVITED ON PROPOSED REGULATIONS: Industry comment has been invited by the USAEC on a proposed amendment and on new radiation protection rules. The amendment (to special nuclear material regulation, 10 CFR 70) would require semi-annual reports from licensed users of special nuclear materials covering receipts, transfers and inventories. Presently, such reports are submitted at specific USAEC request... The new radiation protection rules would require employers to give workers regular written reports on exposure they have received to radiation, Lower ceilings would also be set on permissible concentrations of certain radionuclides in air and water to which the general public is exposed.

NEW THERMAL BREEDER REACTOR PROGRAM STARTED: Long range program has been started by the USAEC to develop effective thermal breeder nuclear reactors making full use of the latent energy in thorium. (Objectives are development of a breeder reactor capable of converting thorium to fissionable fuel material at a doubling time of not more than 25 years.) The new program will mean an end to work on the Commission's Fluid Fuel Reactor Program except for features that may be "reoriented" to the new project. A Commission study had found that "there is little incentive for further development of fluid fuel reactors as an approach to the attainment of low cost nuclear power in the near future". Consequently, there will be an end to work on a liquid metal fuel reactor on which Brookhaven National Laboratory has spent $15 million since 1953, and on which Babcock & Wilcox has spent $8 million since 1956, under USAEC contracts. Likely to be discontinued also is the $6 million molten salt reactor project at Oak Ridge National Laboratory. However, the aqueous homogeneous reactor project at Oak Ridge, on which $65 million has been spent since 1950 will be fitted in to the thermal breeder reactor program, which will require an operating budget of from $5 million to $7 million for fiscal 1961.

MEETINGS, COURSES, CONFERENCES...

Two day symposium on nuclear fuel processing is scheduled for Oct. 20-21, 1959, at Hanford Works, Richland, Wash., under sponsorship of USAEC and contract operators of several Commission facilities. The symposium will be open to private reactor operators, fuel fabricators, and other management and technical people. Further details may be obtained from J. T. Christy, Hanford operations office, USAEC.

American Nuclear Society is planning its Winter meeting for Nov. 4-6, 1959, in Wash., D. C. Some 200 technical papers will be presented; general chairman of the meeting is George L. Weil. Details may be obtained from Octave J. Du Temple, executive secretary of the ANS, 86 E. Randolph St., Chicago 1, Ill.

National American Chemical Society meeting, Sept. 13-18, 1959, in Atlantic City, N.J., will hear symposia on radiochemical analysis; and on the place of nuclear and radiochemistry in the curriculum.

NEWS OUTSIDE THE U.S...

UNITED KINGDOM: New device for Britain's thermonuclear program indicates new approach by U. K. Atomic Energy Authority in fusion research. As revealed by the Authority in its annual report (H. M. Stationery Office, London, price 5s.) the new device--the intermediate current stability experiment--will replace its present ZETA machine. It will cost £400,000 to £500,000. While it will be doughnut-shaped like ZETA, it will have a more complex magnetic system to improve stability and eliminate losses...With the release of the report, it was also announced that the UKAEA is considering a steam-cooled, heavy-water reactor system for a 100 mw experimental plant; and that nuclear power plants based on the advanced gas-cooled prototype now under construction at Windscale are expected to produce nuclear power at competitive costs between 1965 and 1970.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED August 4th, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) X-ray diffraction apparatus. Lloyd R. Rose, inventor No. 2,898,469 assigned to General Electric Co.

PATENTS ISSUED August 4th, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Method and apparatus for determining charged particle motion. Quentin A. Kerns, inventor. No. 2,897,605 assigned to USAEC. (2) Method of rolling uranium. Cyril S.Smith, inventor. No. 2,897,697 assigned to USAEC. (3) Dimension measuring optical sighting device. Gerald E. Kerr, inventor. No. 2,897,718 assigned to USAEC. (4) Adsorption method for separating thorium values from uranium values. G. E. Boyd, E. R. Russell, J. Schubert, inventors. No. 2,898,185 assigned to USAEC. (5) Solubilization of actinide metal-containing slag. Horace H. Hopkins, Jr., inventor. No. 2,898,186 assigned to USAEC. (6) Production of uranium tetrafluoride. W. E. Shaw, R. M. Spenceley, F. M. Teetzel, inventors. No. 2,898,187 assigned to USAEC. (7) Removal of chloride from aqueous solutions. W. W. Schulz, inventor. No. 2,898,203 assigned to USAEC. (8) Method of heat-treating uranium-solicon alloys. Sylvester T. Zegler, inventor. No. 2,898,252 assigned to USAEC. (9) Method of fixing nitrogen for producing oxides of nitrogen. P. Harteck, S. Dondes, inventors. No. 2,898,277 assigned to USAEC. (10) Fuel rod clusters. Arthur B. Schultz, inventor. No. 2,898,280 assigned to USAEC. (11) Neutronic reactor control. S. Untermeyer, E. Hutter, inventors. No. 2,898,281 assigned to USAEC. (12) Apparatus and method for welding end closure to container. C. E. Frantz, T. B. Correy, inventors. No. 2,898,444 assigned to USAEC. (13) Method of preparing polonium-boron sources. J. H. Birden, inventor. No. 2,898,473 assigned to USAEC. (14) Airborne radiation detector. T. R. Cartmell, J. F. Gifford, inventors. No. 2,898,497 assigned to USAEC. (15) Resonant cavity excitation system. W. R. Baker, inventor. No. 2,898,555 assigned to USAEC.

PATENTS ISSUED August 11, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Method and system for operating x-ray tubes. F. Fruengel, inventor. No. 2,899,562 issued to inventor of record. (2) Probe housings for nuclear radiation detection. D. D. Stellmacher, R. C. Danta, inventors. No. 2,899,563 assigned to Hoffman Electronics Corp. (3) Geiger-Mueller detector. J. Hermsen, P. J. Kraayeveld, inventors. No. 2,899,582 assigned to North American Philips Co., Inc., New York, N.Y. (4) Linear accelerator. E. L. Ginzton, inventor. No. 2,899,598 assigned to Leland Stanford University, Stanford, Calif. (5) Process for preparing dense filterable beryllium hydroxide. Jean-Claude Hutter, inventor. No. 2,899,276 assigned to Pechiney, Paris, France.

PATENTS ISSUED August 11, 1959 to GOVERNMENTAL ORGANIZATIONS: (1) Refractory die for extruding uranium. E. C. Creutz, inventor. No. 2,899,054 assigned to USAEC. (2) Recovery of uranium from aqueous phosphate-containing solutions. I. Igelsrud, E. F. Stephan, inventors. No. 2,899,268 assigned to USAEC. (3) Method of preparing metal fluorides. J. J. Katz, I. Sheft, inventors. No. 2,899,269 assigned to USAEC. (4) Production of thorium fluoride. W. H. Zachariasen, inventor No. 2,899,270 assigned to USAEC. (5) Separation of tin from alloys. W. T. Kattner, inventor. No. 2,899,295 assigned to USAEC. (6) Method of producing dense consolidated netallic regulus. T. T. Magel, inventor. No. 2,899,297 assigned to USAEC. (7) Process of producing shaped plutonium. R. J. Anicetti, inventor. No. 2,899,298 assigned to USAEC. (8) Recovery of uranium by aromatic dithiocarbamate complexing. O. K. Neville, inventor. No. 2,899,451 assigned to USAEC. (9) Thorium oxalate-uranyl acetate coupled procedure for the separation of radioactive materials. J. W. Gofman, inventor. No. 2,899,452 assigned to USAEC. (10) Apparatus for producing shadowgraphs. R. R. Wilson, inventor. No. 2,899,557 assigned to USAEC.

NEW BOOKS & OTHER PUBLICATIONS...

Experimental Nuclear Physics. Vol. III. Edited by E. Segre. Radioactive decay; gamma-rays and beta-rays; particle accelerators. 811 pages. ($23.00). (Vol. I and II, published in 1953, are available at $16.50 and $13.00 respectively.)--John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y.

Teaching With Radioisotopes. Manual for use of science teachers in high schools and colleges. 60 pages. -- Div. of Biology & Medicine, U. S. Atomic Energy Comm., Wash. 25, D. C.

Research and Development in Reactor Safety. Review of the USAEC's reactor safety program. 66 pages.--Supt. of Documents, Wash. 25, D. C. (65¢)

PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS: First commercially available 1-heptene-1-C-14 in the U. S. is now available from this processor. The compound is said to be research grade material which has been fractionated and analyzed by gas chromatography. -- Research Specialities Co., 200 So. Garrad Blvd., Richmond, Calif.

PRODUCT NEWS: Price of iodine-131 has been reduced 20-25% by the USAEC. New prices now in effect are 40¢ per millicurie for up to 199 mc; 35¢ per mc for 200 to 499 mc; and 30¢ per mc for over 500 mc. Old prices had been 50¢ per mc for up to 499 mc, and 40¢ per mc for more than 500 mc. Radioiodine is sold by the USAEC from its Oak Ridge National Laboratory; sales made by the Laboratory to processors totaled over 1,000 curies during 1958.

Optional feature in its model 34-2 200 channel analyzer is the multi-channel scaler mode of operation, the manufacturer, Radiation Instrument Development Laboratory, Inc., Chicago, Ill., points out. In this mode, the analyzer will store information in one channel for preset time. At the end of this time interval, the address will automatically advance to next channel and analyzer will again store information for the preset time. The operation will continue through the entire 200 channels or any of the memory subgroups.

Reactor grade beryllium metal is being delivered to the USAEC by The Beryllium Corp., Reading, Pa., at rate greater than called for in contract it holds from the Commission. Under the company's five-year contract it is to supply total of 187,000-lbs. of beryllium metal billet at the rate of approximately 37,000-lbs. per year. While this original contract for the beryllium billet was intended solely for the purpose of nuclear end use, a continuous part of the production is being diverted to Defense Department applications in the aircraft and missile industry. (The company has joined with Imperial Smelting Corp., Ltd., London, to form Consolidated Beryllium, Ltd.; the latter has started design work on beryllium metal plant in England.)

MANUFACTURERS' NEWS: Sale of a 10 million electron-volt research accelerator has been made by High Voltage Engineering Corp., Burlington, Mass., to the Max Planck Institut fur Kernphysics, Heidelberg, Germany. The instrument, a tandem Van de Graaff positive ion accelerator, will be used for basic nuclear research. Its purchase was financed through the German government.

General Electric Co.'s atomic power equipment department, San Jose, Calif., has been selected to design and manufacture equipment for the nuclear instrumentation and safety systems for Consolidated Edison Co.'s Indian Point, N.Y., nuclear power station. Final negotiations for the equipment are being conducted with Bailey Meter Co., which is supplying the major portion of the plant instrumentation and control equipment. The nuclear instrumentation system will include solid state safety equipment employing transistors. Ten channels of neutron monitoring instruments will be used, including start-up channels, intermediate range channels, log-N period channels, and power level flux monitoring channels. (Babcock & Wilcox Co. has contract for nuclear design and research at this plant, and will furnish major items of nuclear equipment, including the core.

Gyra Electronics Corp., La Grange Park, Ill., manufacturer of electronic apparatus including nuclear reactor instrumentation, has appointed three regional sales representatives. Mr. C. W. Reed, of the C. W. Reed Co., 5959 So. Hoover St., Los Angeles, Calif., will represent Gyra in the eleven far western states. Mr. Maurice Asa, at the Berkeley branch office, 3024 College Ave., Berkeley 5 Calif., will assist Mr. Reed in handling this region in N. California, Washington, and Oregon. Representing Gyra in metropolitan New York, northern New Jersey, and Fairfield County, Conn., will be Mr. H. Shprentz, of the Herbert Shprentz Co., Scarsdale, N.Y.

Experimental work under a USAEC contract is being started by Aerojet-General Nucleonics on direct fixation of atmospheric nitrogen in a nuclear reactor. The system would use fission product recoil energy, and would thus use up to 80% of fission energy. A paper study of this proposal by an Aerojet-General group headed by Marvin R. Gustavson shows that it may be technically feasible and economically sound. Estimated yield is two tons of nitric acid using one gram of fully enriched uranium.

Sincerely,

The Staff,
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